

Quick Start Guide

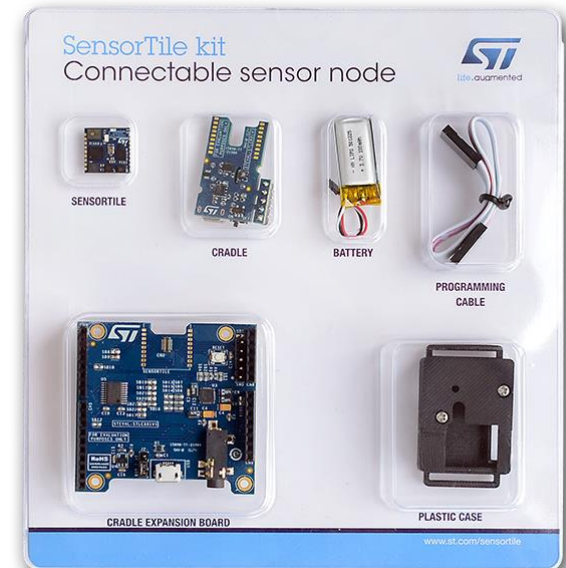
SensorTile Kit - STEVAL-STLKT01V1



www.st.com/sensortile



Ver. 2.1.0

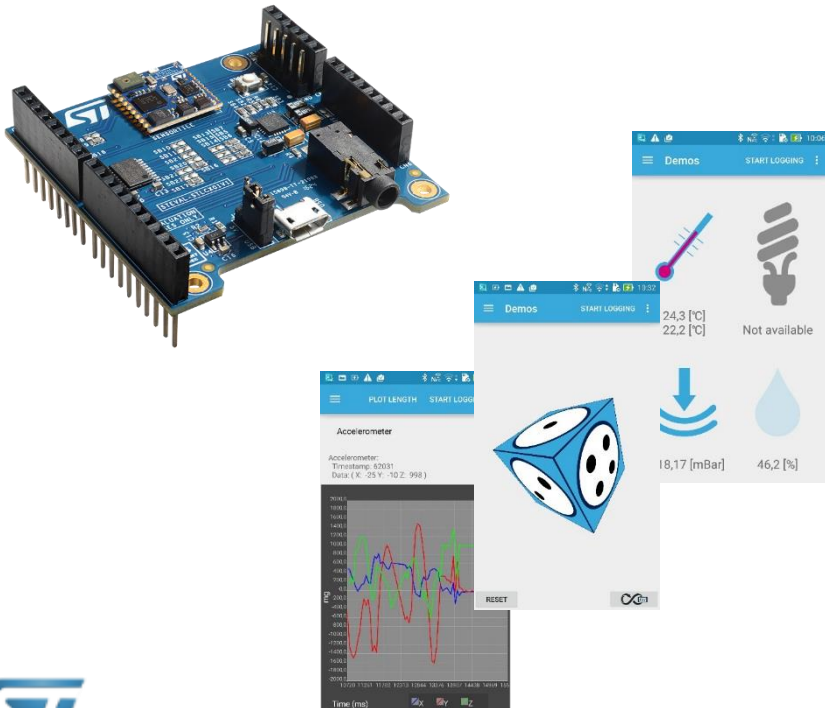


What do you want to do?

2

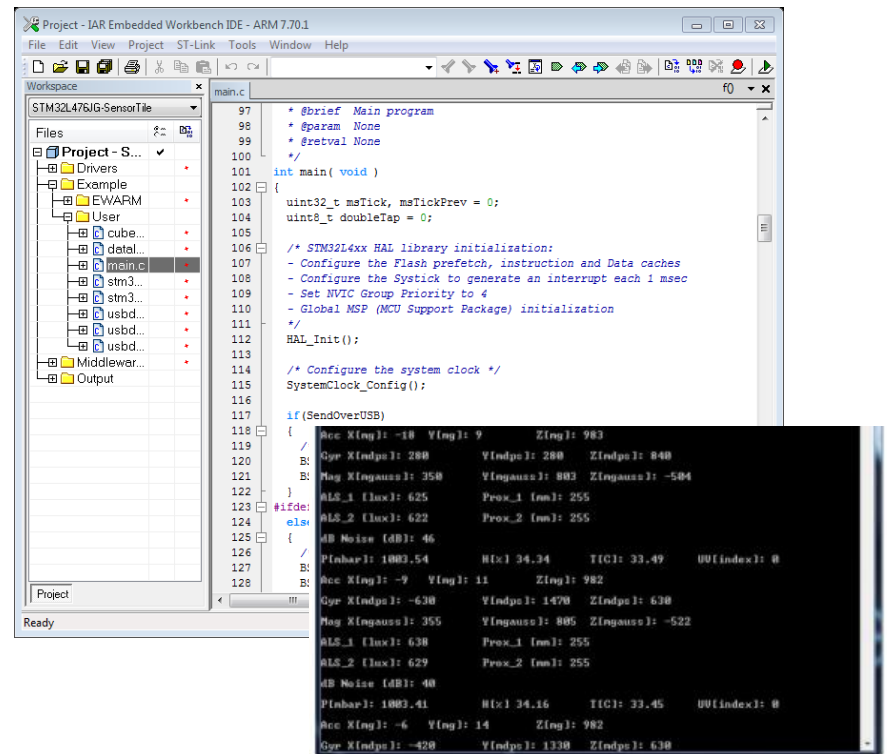
Unbox and run
default demo

Page 3



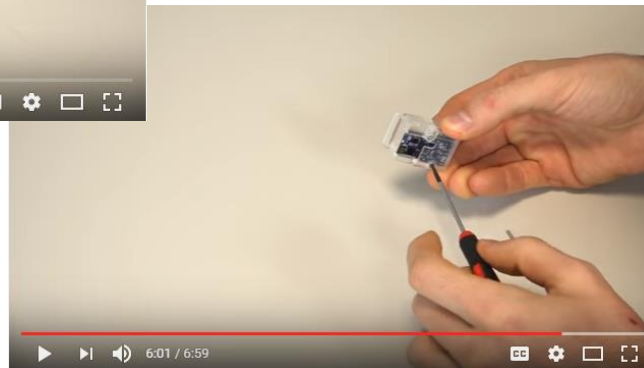
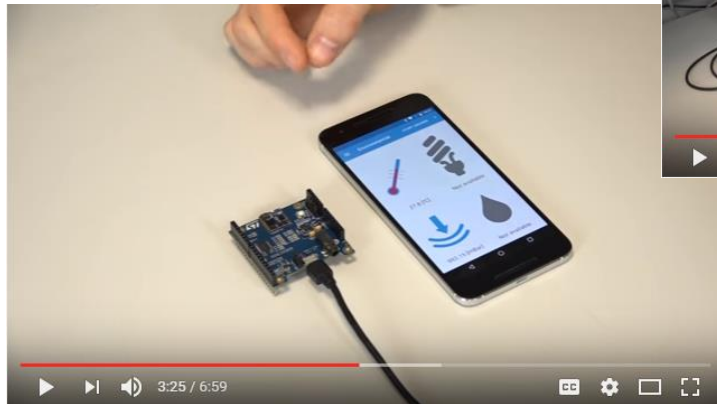
Start designing
your application

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First Setup – Unboxing Video

- Have a look at the SensorTile Unboxing Video on Youtube which covers unboxing and first use of the SensorTile Kit:
 - <https://youtu.be/4yQgL8UQPOw>

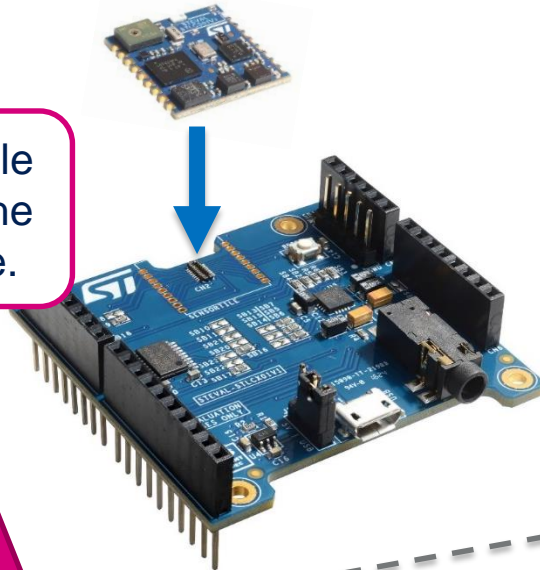


First Setup – Run the preloaded Demo

- The preloaded demo on SensorTile Kit is the BlueMicrosystem2

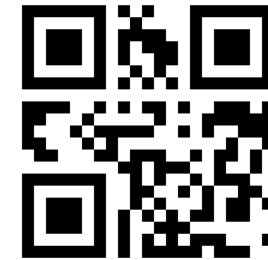
Step 1

Plug the SensorTile Core System on the Expansion Cradle.



Step 2

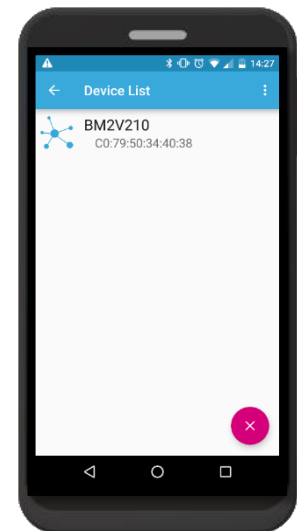
Power it via **USB**



www.st.com/bluems

Step 3

Download and run **ST BlueMS App** (Android or iOS)



Programming the SensorTile – Two choices

Starter Firmware

Page 6

- Very simple to use
- Basic features
- 3 example projects
 - DataLog: USB or SDCard
 - AudioLoop: microphone acquisition and audio output
 - BLE_SampleApp: Bluetooth Low Energy sample app (compatible with BlueMS App)

BlueMicrosystem2

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- More complex to use
- Complete source code of the preloaded demo
- Advanced features
 - Compiled libraries
 - Advanced algorithms
- Compatible with STM32 Open Development Environment

See also:

Hardware Setup for board programming

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Starter Firmware – STSW-STLKT01

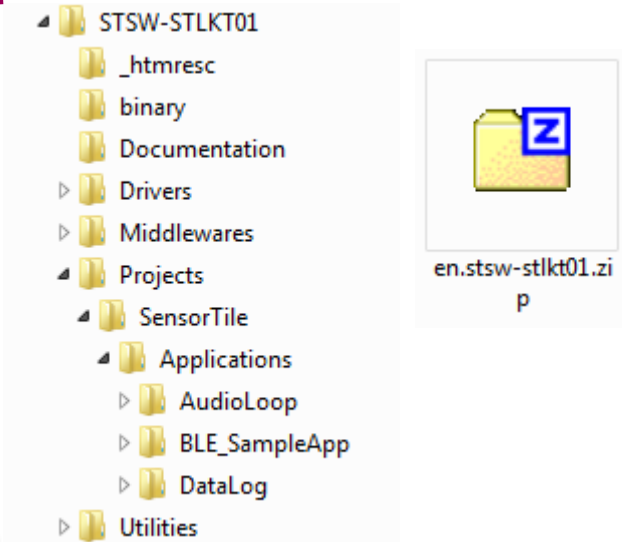
Step 1

Download the Starter Firmware from www.st.com/sensortile

Tools and Software		
EMBEDDED SOFTWARE		
EVALUATION TOOL SOFTWARE		
Part Number	Manufacturer	Description
STSW-STLKT01	ST	Basic firmware application for STEVAL-STLKT01V1

Step 2

Unzip the package on your PC



Step 3

Open one of the the projects examples with your favorite IDE

- ▶ AudioLoop
- ▶ BLE_SampleApp
- ▶ DataLog
- ▶ EWARM → IAR Embedded Workbench
- ▶ Inc
- ▶ MDK-ARM → ARM KEIL μVision IDE
- ▶ Src
- ▶ SW4STM32 → System Workbench for STM32



Advanced Firmware – BlueMicrosystem2

Step 1

Download the BlueMicrosystem2 Firmware from www.st.com/sensortile

MEMS AND SENSORS SOFTWARE		
Part Number	Manufacturer	Description
BLUEMICROSYSTEM1	ST	Bluetooth low energy and sensors software expansion for STM32Cube
BLUEMICROSYSTEM2	ST	Bluetooth low energy and sensor software expansion for STM32Cube

Step 2

Unzip the package on your PC

Step 3

Open the SensorTile version of the project with your favorite IDE


- Applications
 - BlueMicrosystem2
 - Binary
 - EWARM
 - STM32F401RE-Nucleo
 - STM32L476RG-Nucleo
 - STM32L476RG-SensorTile**
 - Inc
 - MDK-ARM
 - Src
 - SW4STM32

IAR Embedded Workbench

ARM KEIL μ Vision IDE

System Workbench for STM32

- BlueMicrosystem2_V2.1.3
 - _htmresc
 - Documentation
 - Drivers
 - Middlewares
 - Projects
 - Multi
 - Applications
 - BlueMicrosystem2
 - Utilities

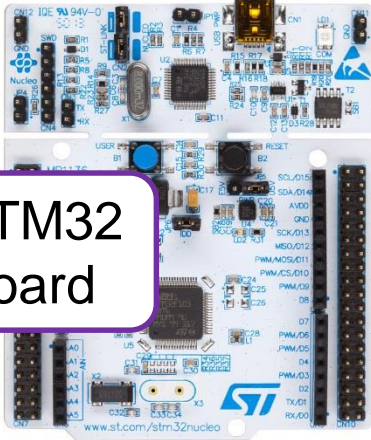


en.Bluemicrosystem2_firmware.zip

Hardware Setup for board programming

Step 1

Take an STM32 Nucleo board



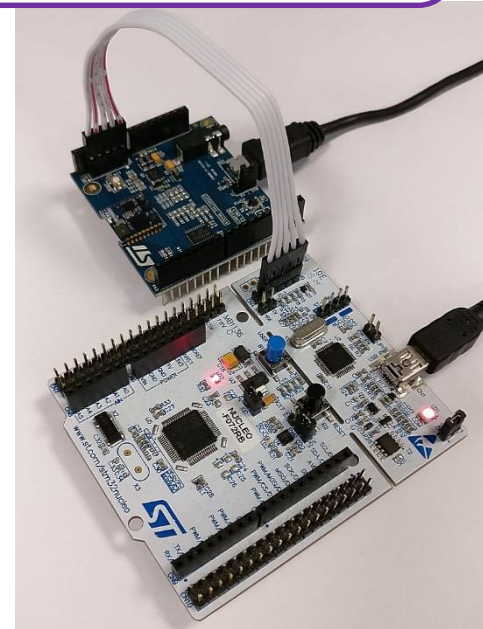
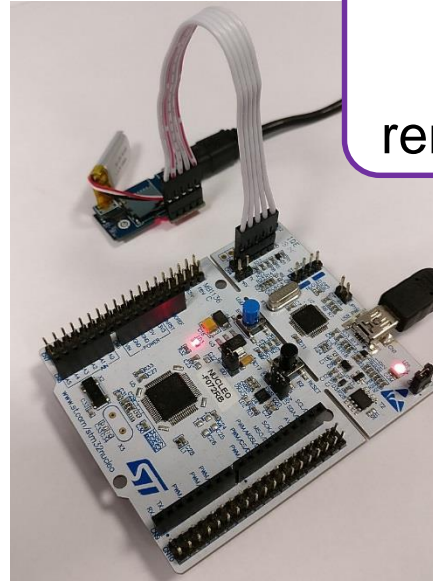
Step 3

Connect to the PC and download the firmware with your IDE

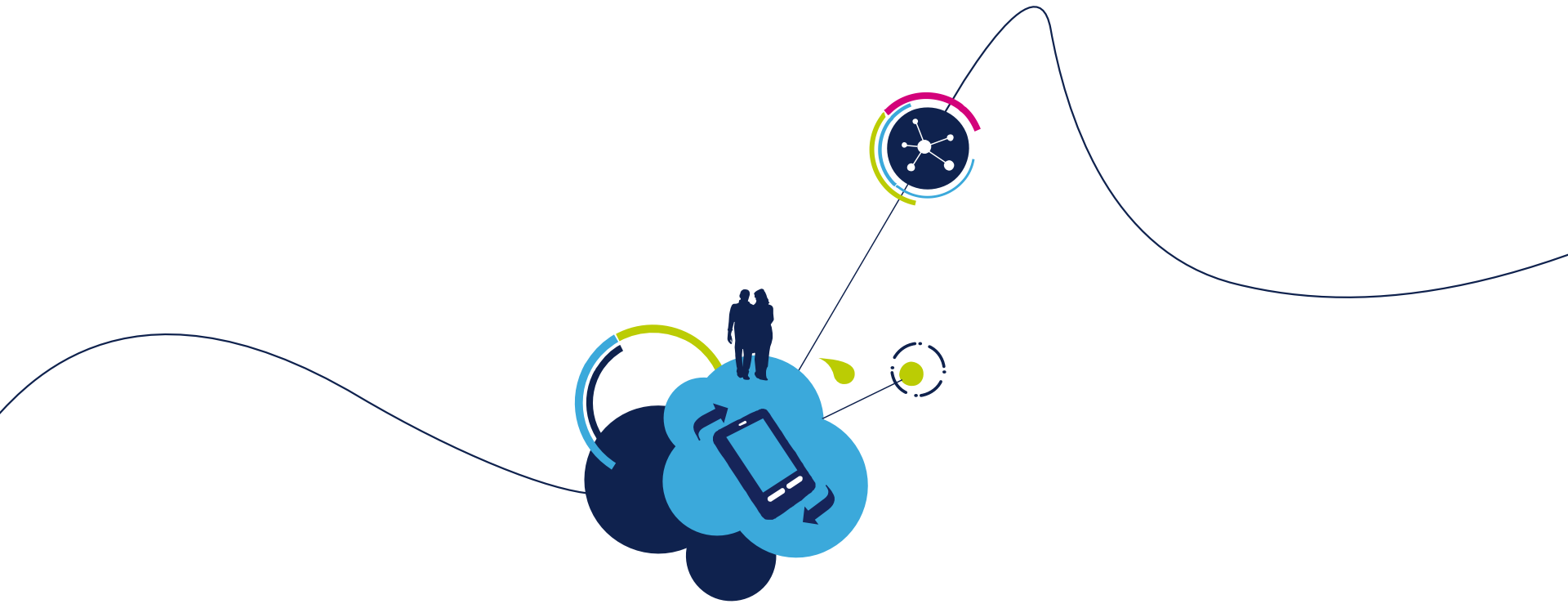


Step 2

Connect it to the SensorTile and remove CN2* jumpers



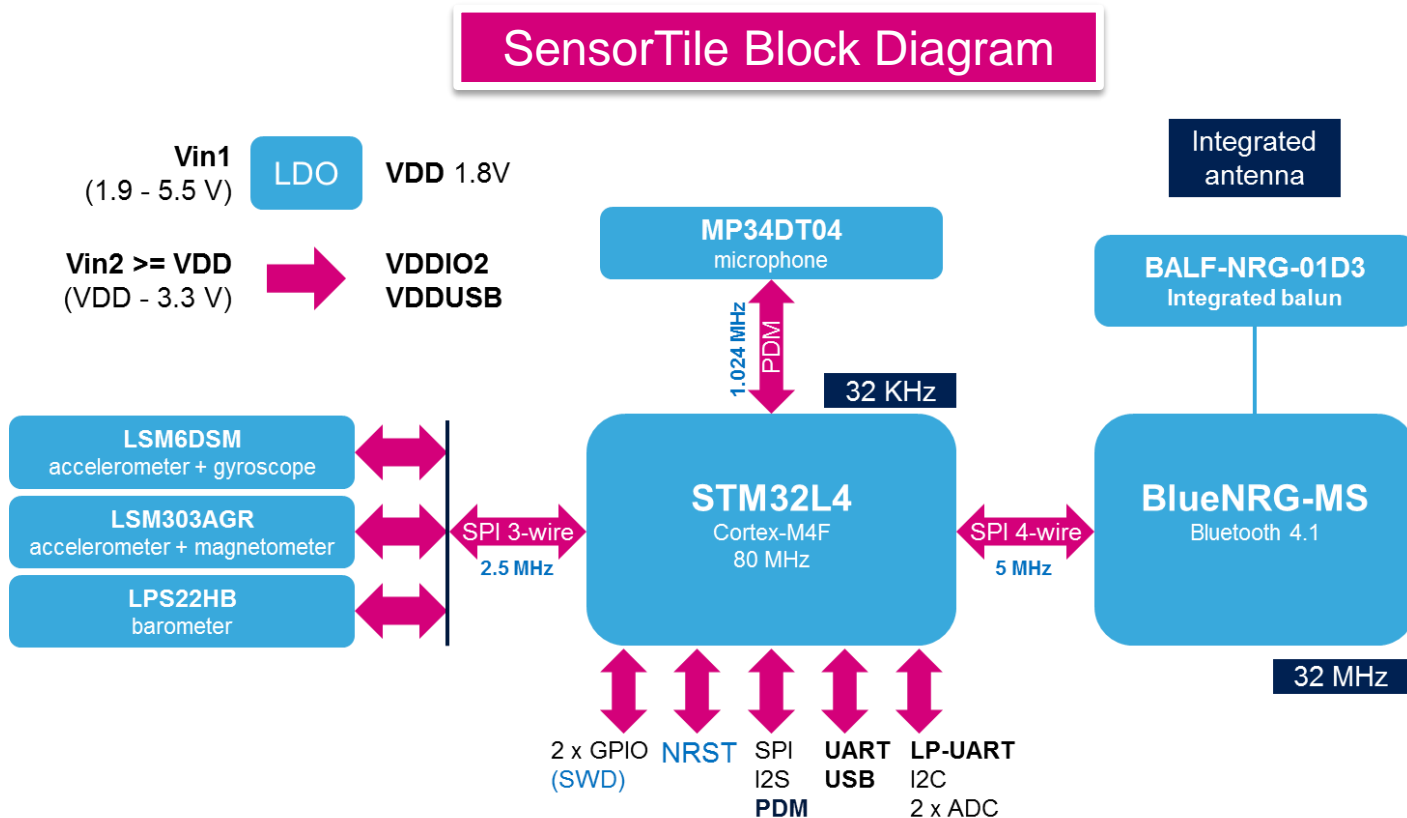
* See page 14 for details



More information

SensorTile Platform – Hardware overview

- STEVAL-STLKT01V1 is the development kit for the SensorTile board (STEVAL-STLCS01V1), a highly Integrated Development Platform with a broad range of functionalities aiming to improve system design cycle and accelerate delivery of results
- Two host boards are also provided as part of the kit, both featuring SWD programming interface



SensorTile Core System

SensorTile Core System: STEVAL-STLCS01V1

MP34DT04

Microphone
64dB SNR, 120dB SPL

STM32L476

Cortex-M4
Up to 100DMIPS 80MHz
100uA/MHz@24MHz in run mode

LSM6DSM

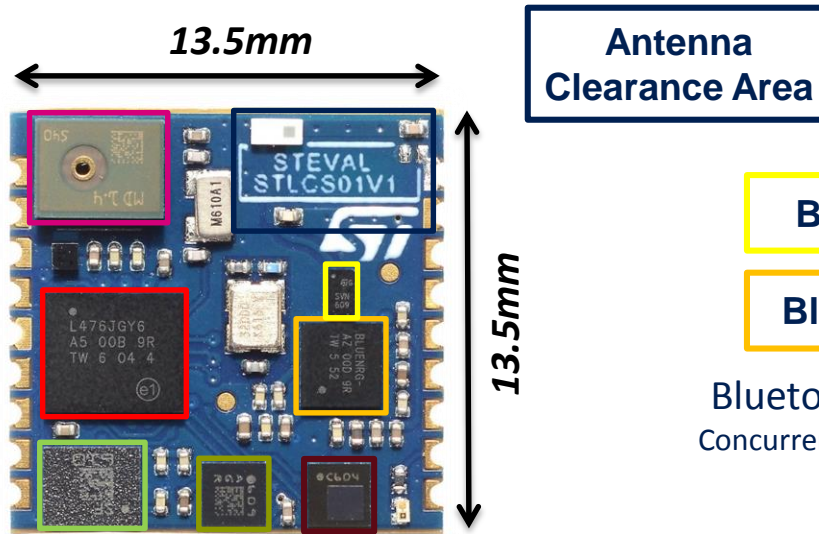
3DAcc+3DGyro
0.65mA @ 1.6kHz - 9uA @ 12.5Hz

LSM303AGR

3DAcc+3DMag
200uA @ 20 Hz (HR mode)
Accel/Mag independent
power down mode

LPS22HB

Barometer
1-75Hz, 3-12uA @ 1Hz

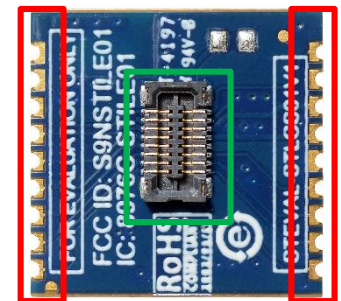


Balun Filter

BlueNRG-MS

Bluetooth low-energy
Concurrent master/slave BT4.1

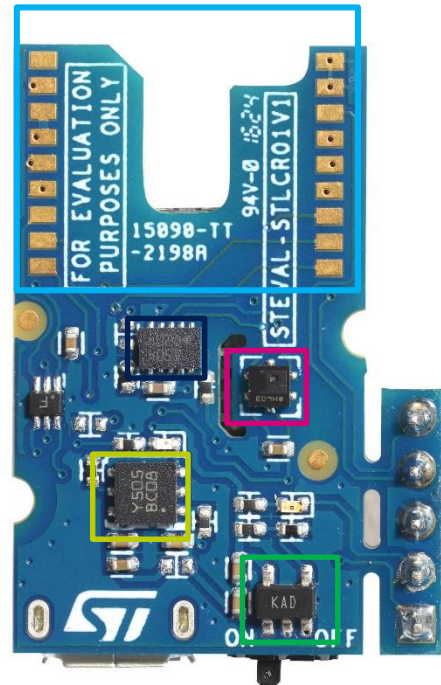
Solderable



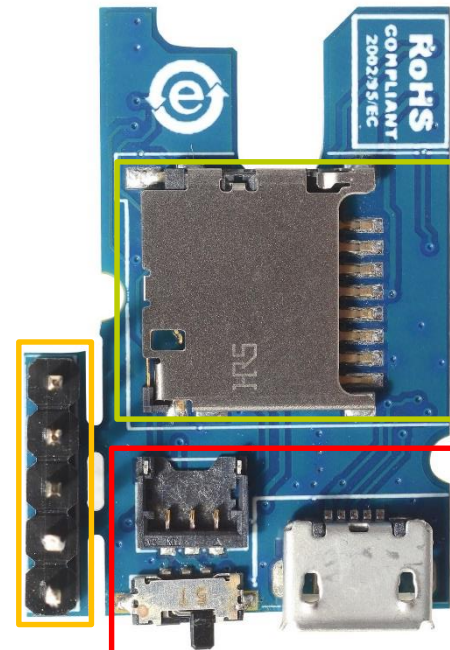
Plug-in

SensorTile Cradle: STEVAL-STLCR01V1

TOP VIEW



BOTTOM VIEW



SensorTile Footprint

Solderable

HTS221

Humidity and Temperature sensor

STC3115

Gas gauge IC with alarm output

STBC08

Li-Ion Battery charger with thermal regulation

LDK120

200 mA very low noise LDO

SWD

SWD programming interface

Micro-SD Card slot

Micro USB ON/OFF switch Battery Plug

SensorTile Expansion Cradle

SensorTile Expansion Cradle: STEVAL-STLCX01V1

SensorTile Footprint

ST2378ETTR

8-Bit Level Translator
3.3V ↔ 1.8V

SWD & Reset

SWD programming interface
and reset button

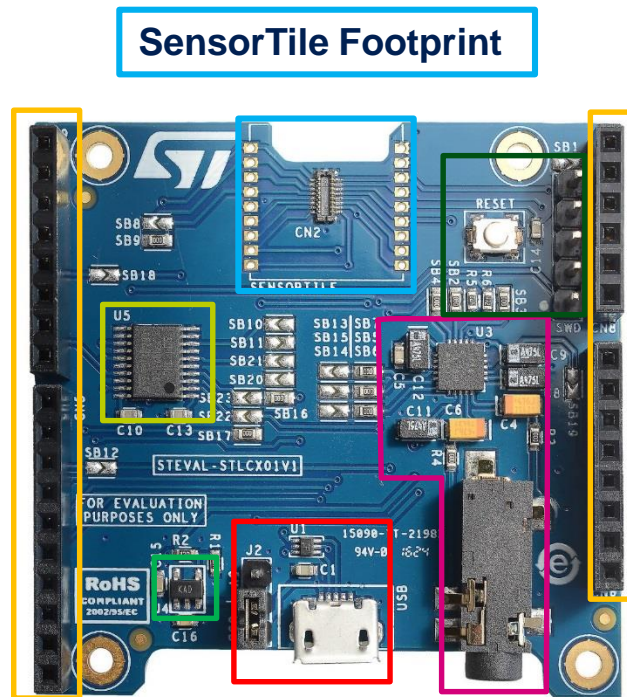
Arduino Connectors

Audio DAC
&
3.5mm jack

LDK120

200 mA very low
noise LDO

Micro USB
and power selector

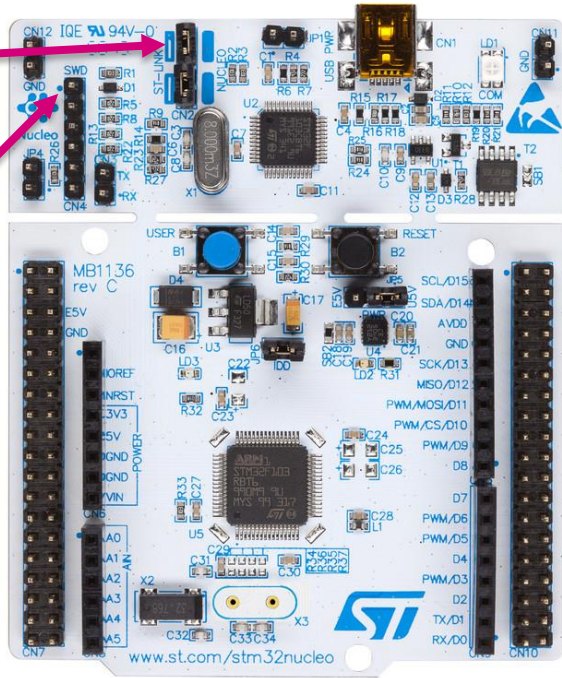


SensorTile Programming/Debugging

- Connect an external ST-Link to the cradles SWD connectors. A 5pin flat cable is provided within the SensorTile Kit package
 - The easiest way is to get an STM32-Nucleo board which includes an ST-Link V2.1
 - Remove CN2 Jumpers from the Nucleo Board
 - Connect the SWD interfaces using the provided cable

CN2
Remove
Jumpers

SWD
(Pin1)



SWD
(Pin1)

